(54) Title: PROCESS AND DEVICE FOR DETERMINING A TRANSFORMING ELEMENT FOR A GIVEN TRANSFORMATION FUNCTION, METHOD AND DEVICE FOR TRANSFORMING A DIGITAL SIGNAL FROM THE TIME DOMAIN INTO THE FREQUENCY DOMAIN AND VICE VERSA AND COMPUTER READABLE MEDIUM
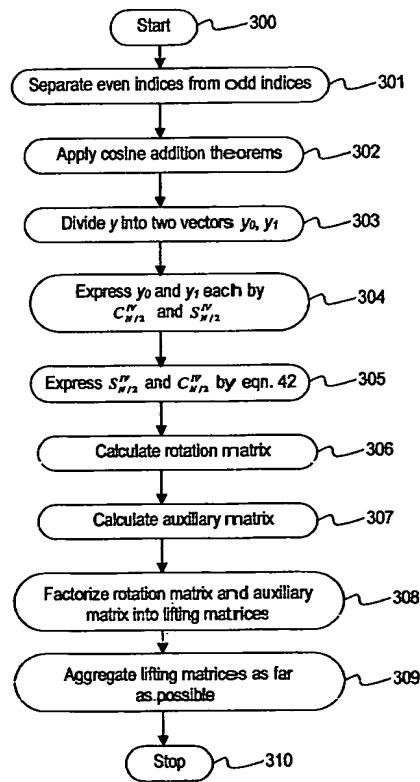
(57) Abstract: According to the process for determining a transform element for a given transformation function, which transformation function comprises a transformation matrix and corresponds to a transformation of a digital signal from the time domain into the frequency domain or vice versa, the transformation matrix is decomposed into a rotation matrix (306) and an auxiliary matrix (307) which, when multiplied with itself, equals a permutation matrix multiplied with an integer diagonal matrix. Further, the rotation matrix (306) and the auxiliary matrix (307) are each decomposed into a plurality of lifting matrices (308). Further, the transforming element is determined to comprise of a plurality of lifting stages (309) which correspond to the lifting matrices (308). The invention further provides a method for the transformation of a digital signal from the time domain into the frequency domain according to the transforming element determined by the process described above.

GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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